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Floristic Survey, Taxonomy, Distribution and Uses of an Astvartga Herb *Malaxis acuminata* D. Don From Kumaun Himalaya of Uttarakhand

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ABSTRACT

Malaxis acuminata, is a terrestrial orchid, native to Himalayan region and requires specific soil and climate conditions to thrive. The herb has been used in traditional Ayurvedic medicine for centuries, especially for treatment of digestive and respiratory problems. The orchid is believed to possess antioxidant, anti-inflammatory and immune boosting properties. Due to its habitat loss and over-exploitation by the local people for their consumption Malaxis is listed as vulnerable species by IUCN. The Kumaun Region of Uttarakhand is especially important as it sustain several herbal plants including *Malaxis* species, which warrant proper conservation under the present day environmental crises. *Malaxis acuminata* is found in the temperate to subalpine regions of Kumaun Himalaya. Natural habitat of *Malaxis acuminata* in the Kumaun region was identified with the help of available literature. Field samples of the plant were collected from its natural habitats and identified with the help of available literature and herbarium of the plants available at RARI (Regional Ayurveda Research Institute), CCRAS , Ranikhet The present study is showing the floristic survey and distribution of *Malaxis acuminata* in the Kumaun Region of Uttarakhand and the study also give information about the habitat, taxonomy and uses of this herb. In the present study *Malaxis acuminata* D. Don. was found to distribute in many sites of district Almora, Bageshwer, Nainital Champawat and Pithoragarh. The study revealded that Uttarakhand, northwest Himalaya holds most medicinal plants compare to any other region of India.

1. Introduction

Uttarakhand has been traditionally known as a gold mine of herbs, medicinal and aromatic plants in the country. The state falls under the West Himalayan Bio-geographic zone and since time immemorial has been rich repository of herbs and medicinal plants. The Kumaun region of Uttarakhand is rich repository of the medicinal plants with many other valuable plants. Local inhabitants are largely utilizing these medicinal plants for domestic consumption and preparation of plant based drugs by pharmaceutical industries. In recent years, increasing attention is being paid to medicinal plant value both due to their economic and conservation concern (Dhar *et al.,* 2000). Many species of the medicinal plants of Kumaun Himalaya are considered as most endangered and listed in the Red Data Book of Indian plants. A number of medicinal plants of high importance have depleted to an alarming stage.

Malaxis acuminata another name Crepidium acuminatum (D.Don) is an Astvarga medicinal herb is selected for carrying out present work. The species belongs the the family Orchidaceae. Commonly known as Jivaka, is mainly used for its cooling effect, febrifuge, refrigerant activity and permopiotic; it acts against fever, semen-related weakness, burning sensation, tuberculosis, haematemesis, dipsia, emaciation, general debility, bleeding and diathesis (Balkrishna 2012;

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Subedi et al. 2013; Adams *et al.* 2017).The main part of the plant used in Ayurvedic medicine is the pseudobulb, which is generally the aerial stem of the plant. Ayurvedic properties of the species are: sweet in taste, cold in potency, pacifies vata and aggravates kapha (Singh 2006). The species is highly medicinal and is narrowly distributed in very few pockets of Kumaun (Gaur, 1999; Bhatt *et al*., 2009; Bhatt *et al*., 2010; Tewari *et al*., 2010; Upreti *et al*., 2009; Upreti *et al*., 2010 and Bhattacharya *et al*., 2010).

Malaxis acuminata is highly medicinal and is narrowly distributed in very few pockets of Kumaun. The main objective of the present study is to identify the natural habitats of the species in Kumaun region and to study the taxonomy, distribution, uses and formulations etc. of the species.

2. Materials and Methods

An extensive literature survey (Osmaston, 1978; Naithani, 1985; Hooker, 1988; Gaur, 1999; Sharma and Balkrishan, 2005; Dhyani *et. al*., 2010) was carried out for identification and demarcation of natural habitat of *Malaxis acuminata* D. Don. in the Kumaun region. Field samples of the plant were collected from its natural habitats and identified with the help of above mentioned literature and herbarium of these plants available at RARI (Regional Ayurveda Research Institute), CCRAS , Ranikhet under the accession no. Rkt 24059, Rkt 24597, Rkt 23913, Rkt 4194 respectively. Voucher specimens were deposited with the herbarium. The herbarium voucher specimen accession *Malaxis acuminata* D. Don. is Rkt 26082. A survey of literature has also been done to find out the distribution, uses and other information on the plant.

3. Results

***Malaxis acuminata* D. Don.**

Botanical name: *Malaxis acuminata*
Family name: Orchidaceae
Local name: Jivak, Lahsunia
Trade name: Jivak
English name: Malaxis acuminata
Taxonomy: Terrestrial herbs, 10-25cm high; bulbous at base covered by old leafy scales. Leaves 3(4), ovate-lanceolate, 10-15x5-6.5cm, acute, undulate margins, membranous. Flowers pale-green tinged purple, shortly stalked, 1-1.2cm across, on many flowered, 8-10cm long spikes; bracts linear, minute. Sepals oblong; lateral broad and short with recurved margins. Petals linear, longer than sepals. Lip shield like, broadly ovate, somewhat convex, tip notched, auricles at base straight or overlapping. Pollinia 4, waxy. Capsules ovoid.

Flowering and Fruiting: August-October.
Habitat: Common; damp and shaded forest floors.
Distribution: *Malaxis* genus is distributed throughout the world. It is found in India, Bangladesh, Eastern Himalayas, Lower India, Nepal, Western Himalaya, Bhutan, Andaman Islands, Myanmar, Thailand, Malasia, Laos, Combodia, China, Vietnam, Java, Sumatra, Philippines and Australia (Trivedi, 2009; Raizada *et al*., 1981). It is also found in Ecuador and Peru in upper mountain grasslands at elevation of 1500-3850m. It is distributed in temperate to subalpine areas of the Himalayan region. Uttarakhand is the richest hub of *Malaxis acuminata* (Shukla and Chaubey, 2008). It is distributed in Submontane to alpine Himalaya, Himachal Pradesh to Arunachal Pradesh; Myanmar, S.E. Asia, China (Gaur, 1999). Temperate and subtropical Himalayas, *viz.* Shimla to Sikkim, Anamalai hills in South India, Khasi hills and Andaman at an altitude ranging between 1200-1700m (Anonymous, 2005). Tewari *et al*., 2008 recorded *Malaxis acuminata* D. Don from damp and shaded forest floors in temperate zone of Ranikhet, Uttarakhand.

Part used: Bulbs, tubers
Uses: Rhizomes are used in Skin diseases (Kushtha), Piles (Arsha), Diseases of children (Balrog), Burning Sensation (Daha), Fistula-in-ano (Bhagandra) (Anonymous, 2008). Locally the bulbs are used in bronchitis as well as given as a tonic (Gaur, 1999). Paste of pseudo bulb can be applied externally in case of insect bites, and when mixed with other plants are used in the treatment of rheumatism (Chakarvarty, 1976). Its swollen stem is sweet, refrigerant, aphrodiasiac, styptic, antidysentric, febrifuge and tonic. It is used in conditions of sterility, vitiated condition of pitta and vata, seminal weakness, internal and external haemorrhages, dysentery, fever, emaciation and general debility (Jadhav, 2008). Considered as a main constituent of 'Astavarga', a group of eight drugs, which forms an important base for a number of Ayurvedic preparations.
Formulations: Dasamularista, Cyavanaprasa, Brahma Rasayana, Sivagutica, Amrtprasa Ghrta, Asoka Ghrta, Dhanvantara Taila, Bala Tail, Manasamitra Vataka, Guducyadi Taila, Brhat Asvagandha Ghrta (Anonymous, 2006).
Contra indication: Hypersensitivity to the drug (Anonymous, 2008).

4. Discussion

The species belongs to the family Orchidaceae (*M. acuminata*) is one from the Astavarga group of medicine. Astavarga is a group of eight medicinal plants in Ayurveda medicine, namely, *Habenaria intermedia* D. Don., *Habenaria edgeworthii* Hook. f. ex Collet, *Malaxis acuminata* D. Don, *Malaxis mucifera* (Lindley) Kuntze, *Polygonatum cirrhifolium* Royle, *Polygonatum verticillatum* Allioni, *Fritillaria roylei* H. f. and *Lilium polyphyllum* D. Don ex Royle (Dhyani, 2009). These plants are considered as a very good *Rasayana* with rejuvenating and health-promoting properties, and are known to strengthen the

immune system and have immense cell regeneration capacity. Astavarga is useful in promoting body fat, healing fractures, seminal weakness, fever, abnormal thirst, diabetic conditions and a cure for *vata, pitta, rakta doshas.* Astavarga plants are also reported to restore health immediately and work as antioxidant in the body (Mathur, 2003; Pandey, 2005; Sharma and Balkrishna, 2005). Astavarga plants are used in different forms e.g. *Taila* (Oil), *Ghritam* (medicated clarified butter), *Churana* (Powder) and formulations in the traditional medical system (TMS) including *Chyavanprasha*, a health- promotive and disease preventive tonic. More importantly, some of the Astavarga formulations e.g. *Chyavanprasha* and *Sudarshana churana* are available in almost every primary health care unit in India (Dhyani *et. al.*, 2010).

The species is generally used as health-promoter tonic. The underground plant parts (pseudo bulbs) are generally used for medicinal purpose. For most medical uses, powder from underground parts is preferred as it is easy to store for long period. *Malaxis acuminata,* is used in Raktapitta; Daha; Ksaya; Raktavikara; Karsya; Svasa; Kasa and Sosa (Anonymous, 2006). *Malaxis acuminata* has also been used pharmacologically in bleeding diathesis, burning sensation and pythisis (lung disease) (Singh, 2006).

Malaxis species are used to increase sperm/reproductive tissue (Chauhan *et al.*, 2008). The pseudo-bulb is used as a health tonic, blood purifier, aphrodisiac and also antioxidant (Jagatram *et al*., 2003). The species is found to distribute in some temperate zones of Kumaun. In the present study *Malaxis acuminata* D. Don. was found to distribute in Dunagiri, Pandavkholi, Kausani, Chaubatia and jageshwer sites of district Almora; Kotmanya, Chaukri and Khati and sites of district Bageshwer; Lohaghat, Debidhura, Khetikhan and Banlekh sites of district Champawat; Kilburry, Bhowali, Ramgarh, Salyura and Bhatrojkhan sites of district Nainital and Liliam, Thal, Munsyari, Berinag and Didihat sites of district Pithoragarh.

In Wild **Rhizome**

Plant **Flower**

Plate: Different Stages of *Malaxis acuminata D.Don*.

5. Conclusion

The species of *Malaxis acuminata,* is found to be distributed from sub-temperate to sub-alpine regions and is used for the cure of many diseases. The species is generally used as health-promotive tonic. The underground plant parts (pseudo bulbs) are generally used for medicinal purpose. For most medical uses, powder from underground parts is preferred as it is easy to store for long period. The herb is facing a risk of extinction in near future. The IUCN status of *Malaxis acuminata* D. Don is rare (Samant *et al*., 2002), The studies of (Nautiyal *et al*., 2003; Kala, 2004, 2007; Samal and Dhyani, 2006; Uniyal *et al.*, 2006; Kala, *et al.*, 2006; Singh and Lal, 2008) revealded that Uttarakhand, northwest Himalaya holds most medicinal plants compare to any other region of India. Considering the importance of this species, there is a need to make timely efforts for its conservation and sustainable utilization.

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